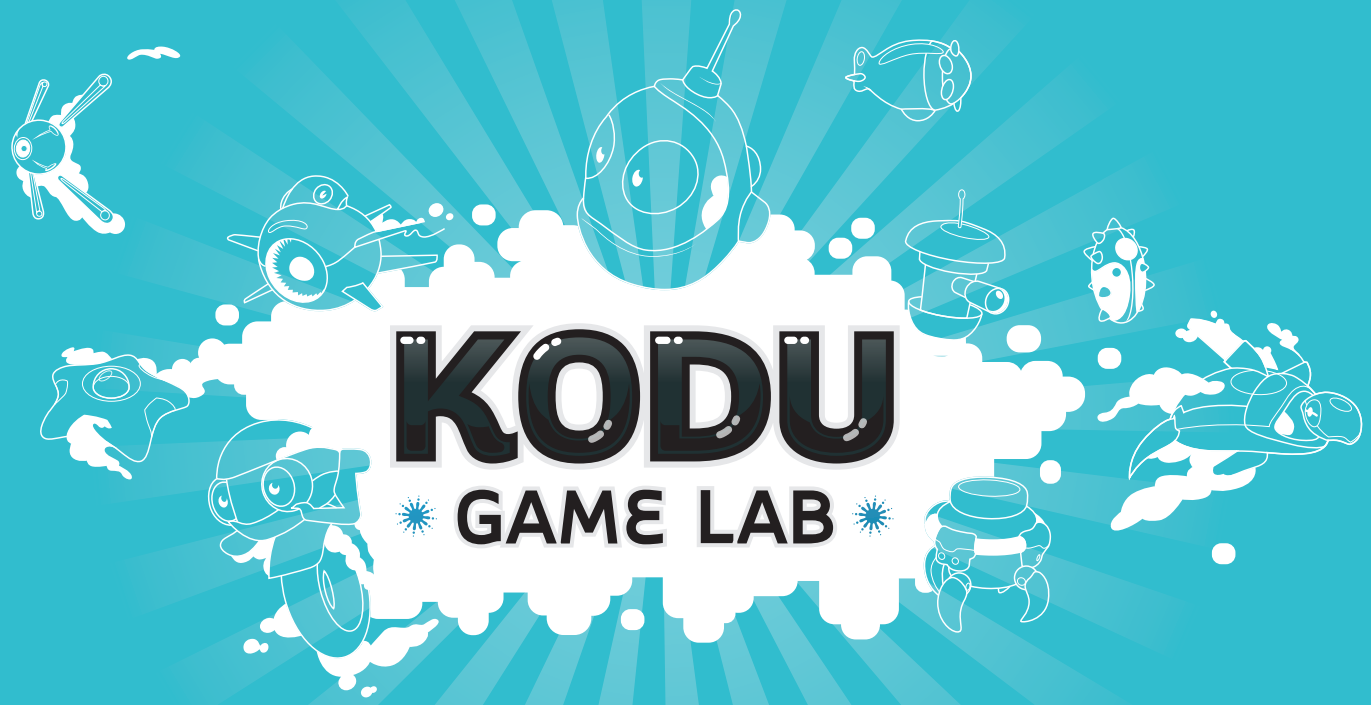
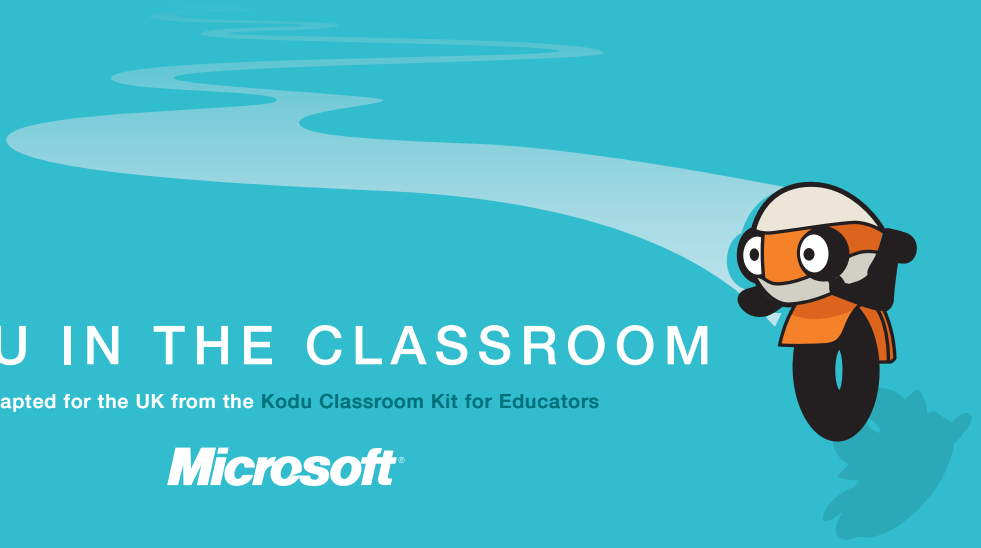


Single Session Introduction



KODU IN THE CLASSROOM

Adapted for the UK from the Kodu Classroom Kit for Educators

Microsoft

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KODU IN THE CLASSROOM: GETTING STARTED

This resource is designed for classes and after-school clubs who want to introduce Kodu in a single session. The idea behind the lesson is to provide learners with enough tools and information so that they can learn the basics.

Kodu Introduction

The core of the Kodu project is the programming user interface. The language is simple, intuitive and entirely icon-based.

Programmes are composed of pages, which are broken down into rules, which are then further divided into conditions and actions.

The Kodu language is designed specifically for game development and provides specialised primitives (the nouns, adjectives, and verbs of the language) derived from gaming scenarios.

Programmes are expressed in physical terms, using concepts like vision, hearing and time to control character behavior. Kodu can express advanced game design concepts in a simple, direct, and intuitive manner.

Teaching with Kodu

Teaching programming concepts in a lesson can be challenging, so it is important to make sure that the goals you set you students are realistic. The most important thing that you are trying to do is get them motivated to use Kodu and inspired to try some of the ideas themselves.

This resource is split into two main parts:

1. **Simple Programming:** We provide a tutorial and a student activity in which objects and simple programming concepts are introduced.
2. **Simple Landscape Creation and Editing:** Time permitting, educators can use the second half of this curriculum 'Editing Your World' to discuss Landscape Creation.

Both aspects of game creation are typically quite interesting to students and, if time allows, try to introduce both concepts.

Student Activity Guidelines

After each lesson idea, we have provided some complementary Student Activities. These enable students to try out concepts that were discussed as a larger group. These have been designed as worksheets that can be printed out so that each student can work through the material at their own pace. They could also complete the activities digitally using software such as Microsoft OneNote.

Depending on your ratio of computers to students, young people may need to work in groups. Pairs can work really well when students are learning a new activity, but it is important that both people or all of the people in the group gain experience of using the keyboard and mouse or Xbox 360 controller.

GETTING STARTED: BASIC NAVIGATION

Before having the students log on to Kodu, it is useful to quickly walk them through the game creation environment. This should take about five minutes and will enable your class to navigate Kodu more quickly.

Here are some of the top menus:

Main Menu	This is the first screen you will see after loading Kodu. If you have played games before, the top menu item will be 'Resume'. Choosing this will reload the last world you had open and start playing ('Play Mode'). If you want to select a new game, you can 'Load World'.
Load Level Menu	Across the centre of screen is a list of saved worlds. You can scroll through the list using the left and right shoulder on a controller, or the arrow keys on the keyboard. Select the world you are interested by pressing the A button, or the Enter key. Although it is possible to create worlds from scratch, Kodu comes with a number of pre-built worlds. These worlds come with land and may also include pre-programmed characters. In this lesson we will start by modifying a pre-built world.
Play Mode	Each world starts in the 'Play Mode'. You can toggle between 'Play' and 'Edit' mode using the Back button on your Xbox 360 Controller, or the Escape button on your keyboard.
Edit Mode	To enter into 'Edit Mode', you must press the Back button (for controller) or Escape (for keyboard). 'Edit Mode' is where you will probably be spending most of your time. You know you are in 'Edit Mode' because you can see the Toolbar at the bottom of your screen. Navigate through the Toolbar using your right and left trigger (controller), or right and left arrows (keyboard). Here you can create the landscape for your game world, populate it with bots and programme their behaviors.
Home Menu	You can get here by pressing 'Play' on the controller, or 'Home' on the keyboard. The 'Home Menu' will let you go back to the world you're currently working with, save your current world and any changes you've made, load another existing world, start with a completely blank work or go back to the 'Main Menu'.

CREATING A SIMPLE PROGRAMME (15 MIN)

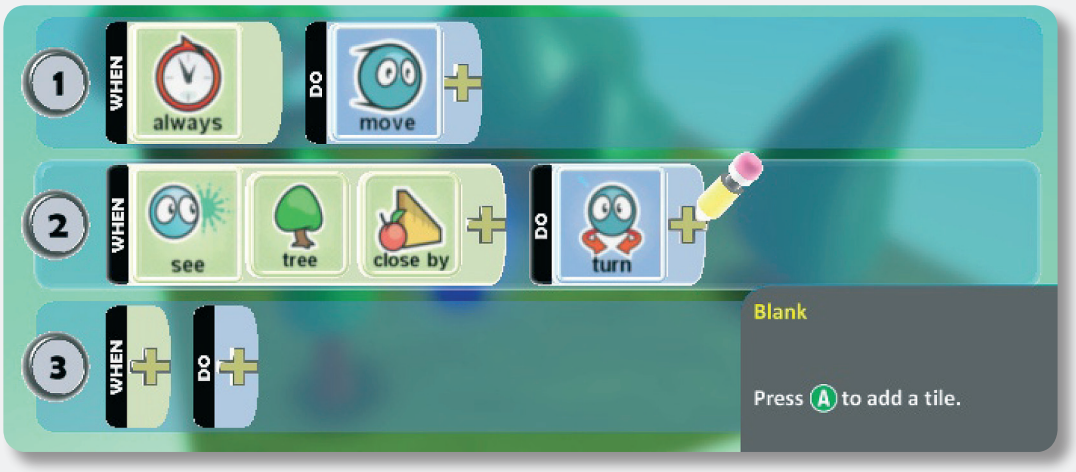
Lesson Aims

By completing the following steps students will be able to:

- Navigate menus in Kodu.
- Access the programming mode of Kodu and potentially be able to adjust simple code for specific purposes.

Lesson Set-Up

To prepare for this lesson, teachers need to create a simple programme in Empty World. Add several trees and a cycle with the following program: 'When: always' Do: move wander; When: see tree close by; Do: move turn.' Save this as Demo 1.



Introduction

Begin the session by opening the world you just created, Demo 1. Ask the students to watch what is happening. Ask volunteers to explain what the cycle is doing. Explanations might be something like:

- Cycle is moving around.
- Cycle is avoiding the trees.

Object Tool

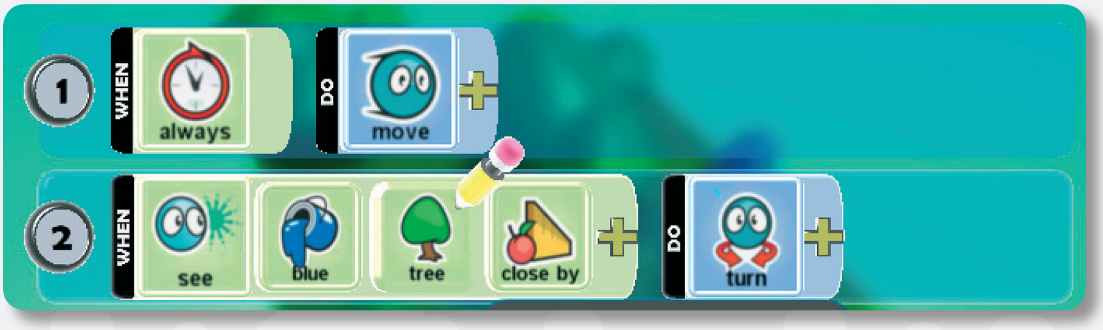
Now, show the students the programme that is running this set of behaviors for the cycle. The Object Tool on the Toolbar is the tool that you will use to add objects to the world and programme them. To edit an object, you must hover over that object. Pick up an object using A and edit its programme with Y, with a controller, or by moving to the object with the mouse and right-clicking.

Viewing a Programme

Ask the students to describe what the code is telling the cycle to do (it should be the same set of actions as above). After students successfully explain the code, ask volunteers to modify the code for the following set of behaviors.

When appropriate, have the student who made the suggestion come modify the code in front of the class and explain why their solution did or didn't work.

- Add a tree to the world.
- Make this tree blue.
- Adjust the cycle's behavior so that it only avoids the blue tree. (Adjust the second line of code to read 'When: see blue tree closeby; + Do: move avoid.')



STUDENT ACTIVITY 1: EATING APPLES

Objectives:

Add object; change colour; select object; create sequential programme for object.

DIRECTIONS FOR CLASS: "Think about what you have just learnt. Now work with your groups to complete each of the following tasks. Check them off your list as you go. Don't forget to make sure each of your group member solves some of the To Do's from the list. Work together to come up with the best solution."

To Do Checklist:

- [ ] Open the world 'Small with water'
- [ ] Add an apple
- [ ] Make this apple blue
- [ ] Add Kodu to your level
- [ ] Make Kodu find the apple that you just added
- [ ] Make Kodu eat the apple once he finds it

Then, you are free to play with adding other objects, adjusting Kodu's behaviors, changing the environments. Keep this level open because you will use it for Activity 2. Ask for help if you need it.

CHALLENGE ACTIVITY

- CONTROLLER VERSION: If you do not already control Kodu with your Xbox 360 controller, change your programme so that you can drive Kodu to the apple. (The left stick controls movement).
- KEYBOARD VERSION: Change your programme to use either the arrow keys or the mouse to move the Kodu (WHEN-keyboard-DO-move, or WHEN-left-mouse-DO-move-towards).
- What other things can you control with your Xbox 360 controller or mouse?

EDITING YOUR WORLD

Objective

1. Change and create a Kodu environment
2. Use tiles for setting and the development of tone and mood for the game world

Students will already know how to create and programme objects. Here, they will learn to modify the landscapes in their games.

Creating and changing the Kodu landscape is one of the most interesting initial activities for early users of Kodu. Young people often spend hours changing and designing intricate landscapes in which their games and animations operate. Landscapes often also set the tone for the game play actions which follow.

Using the same demo world that you created during the first part of this session (Demo 1) ask volunteers to:

- Add/delete land to the existing landmass. Choose the green paint brush in the Toolbar.
- **With a controller:** Select the appropriate landscape material by pressing (Y) and selecting one from the Toolbar. Next, select the brush shape (X) and brush size (D-pad). By using the left stick and holding down either the right trigger to add land or the left trigger to delete land, students can draw the landscape.
- **With a mouse:** Click on the four small terrain icons to the left of the paint brush to pick a material (Arrow keys to select material), and click on the four brush shapes to pick a brush shape (Arrow keys to select). You can then use the Arrow keys to increase or decrease the size of the brush. Click to paint the terrain.

- Add land of a different colour/texture around the perimeter of the landmass. (NB. Use the same steps as before, only change the landscape material and perhaps the brush size. The speed of land addition or subtraction can be controlled by the degree to which the controller is shifted.)

- Create hills and valleys; use the smoothing feature. (Select the Raise Terrain/Lower Terrain icons from the Toolbar. Again, use the Brush Picker and Brush Size. The speed of land raising and lowering can be controlled by the degree to which the triggers are pressed on the controller. NB. The speed cannot be controlled with mouse and keyboard. Also note to students that the smoothing-out feature allows a less jagged landscape which also allows maneuverability.)

This is a good opportunity to talk about the remaining items in the Toolbar. As students work through how they create a feature, ask them to verbalise what they are doing and tell them that it is like thinking out loud and that mistakes might happen. Reinforce the idea that if a problem occurs that we should all think about how to solve it. If they don't change the brush or select a type of land or water, prompt them to do so.

STUDENT SHEET ACTIVITY 2: LANDSCAPES

Objectives:

Create and alter landscape using various land editing tools

DIRECTIONS FOR CLASS: "Using your prior knowledge and information from the demonstration, it is your turn to work together to create and alter a landscape. As you complete each of the following tasks, check them off on the list. Make sure each member of the group solves some of these To Do's from the list. *Work together to come up with the best solution.*"

- [ ] Go to Empty World
- [ ] Create a landmass using any material you like
- [ ] Create an island (Hint: Water cannot be added unless it has land to rest on)
- [ ] Create a plateau (a flat area of land). Now make this area of land bumpy using your Toolbar selections

EXTRA CHALLENGE

After you complete these tasks, work together with your group to add objects to this world. Can you programme these objects?

HOME LEARNING ACTIVITIES

Kodu is fun and intuitive. Try setting your class a home learning activity to build their own Kodu game. They can either think up a game to build and plan themselves or they could follow the tutorials in the *Charlie Loves Kodu YouTube Tutorial* that takes you through how to make a *Frogger*-style game in twelve very simple steps.

You can find the YouTube Tutorials here: http://youtu.be/bd-lnR5i3ao

ADVICE ON SAFER GAMING

For advice on safer gaming, please visit our Play Smart, Play Safe website at www.playsmartplaysafe.eu. Additionally, please note the following console use and healthy gameplay pointers.

CONSOLE SET-UP, USE AND CARE

Failure to properly set up, use and care for the Xbox 360 video game and entertainment system can increase the risk of serious injury or death or damage to the Xbox 360 video game and entertainment system. Please read the manual and the manuals of any accessories accompanying your console for important safety and health information. Keep all manuals for future reference. For replacement manuals, go to www.xbox.com/support.

Before allowing children to use the Xbox video game and entertainment system:

i. Determine how each child can use the Xbox 360 console (playing games, connecting to Xbox LIVE, replacing batteries, making electrical, AV cable and network connections), and whether they should be supervised during these activities.

ii. If you allow children to use the Xbox 360 console without supervision, be sure to explain all relevant safety and health information and instructions.

The Xbox 360 console will not play copied or 'pirated' games or other unauthorized media. Attempting to defeat the Xbox 360 anti-piracy protection system will cause your Xbox 360 console to stop working permanently. It will also void your Limited Warranty and may make your Xbox 360 console ineligible for authorized repairs, even for a fee.

You must accept the terms and conditions of the Limited Warranty and accompanying user manual to use your Xbox 360 console. If you do not accept these terms and conditions, do not set up or use your Xbox 360 console and return it to Microsoft for a refund.

PLAY HEALTHY

Important Health Warnings About Playing Video Games

Photosensitive Seizures

A very small percentage of people may experience a seizure when exposed to certain visual images, including flashing lights or patterns that may appear in video games. Even people who have no history of seizures or epilepsy may have an undiagnosed condition that can cause these 'photosensitive epileptic seizures' while watching video games.

These seizures may have a variety of symptoms, including lightheadedness, altered vision, eye or face twitching, jerking or shaking of arms or legs, disorientation, confusion or momentary loss of awareness. Seizures may also cause loss of consciousness or convulsions that can lead to injury from falling down or striking nearby objects.

Immediately stop playing and consult a doctor if you experience any of these symptoms. Parents or those supervising should watch for or ask children about the above symptoms (children and teenagers are more likely than adults to experience these seizures). The risk of photosensitive epileptic seizures may be reduced by taking the following precautions:

- Sit or stand farther from the TV screen.
- Use a smaller TV screen.
- Play in a well-lit room.
- Do not play when you are drowsy or tired.

If you, your relatives or anyone in your care/supervision have a history of seizures, consult a doctor before playing.

Musculoskeletal Disorders

Use of game controllers, keyboards, mice or other electronic input devises may be linked to serious injuries or disorders.

When playing video games, as with many activities, you may experience occasional discomfort in your hands, arms, shoulders, neck or other parts of your body. However, if you experience symptoms such as persistent or recurring discomfort, pain, throbbing, aching, tingling, numbness, burning sensation or stiffness, DO NOT IGNORE THESE WARNING SIGNS. PROMPTLY SEE A QUALIFIED HEALTH PROFESSIONAL, even if the symptoms occur when you are not playing a video game. Symptoms such as these can be associated with painful and sometimes permanently disabling injuries or disorders of the nerves, muscles, tendons, blood vessels and other parts of the body. These musculoskeletal disorders (MSDs), include carpal tunnel syndrome, tendonitis, tenosynovitis, vibration syndromes and other conditions.

While researchers are not yet able to answer many questions about MSDs, there is general agreement that many factors may be linked to their occurrence, including medical and physical conditions, stress and how one copes with it, overall health and how a person positions and uses their body during work and other activities (including playing a video game). Some studies suggest that the amount of time a person performs an activity may also be a factor.

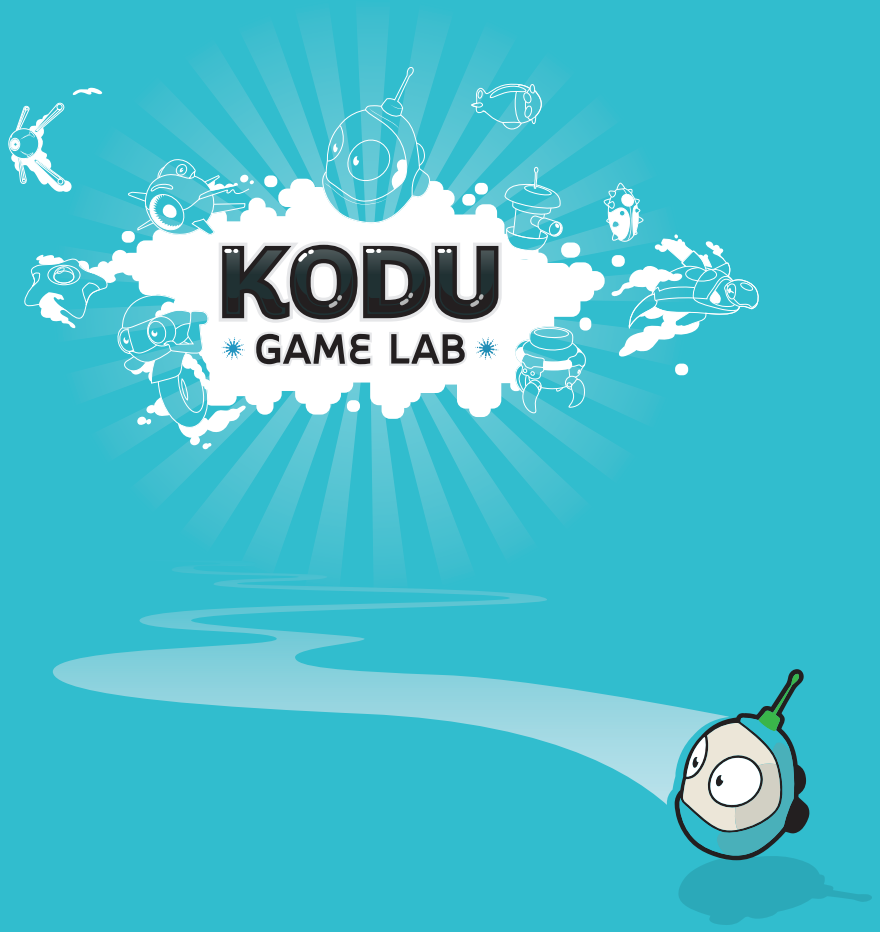
Some guidelines that may help you play more comfortably and possibly reduce your risk of experiencing an MSD can be found in the Healthy Gaming Guide at www.xbox.com. These guidelines address topics such as:

- Positioning yourself to use comfortable, not awkward, postures.
- Keeping your hands, fingers and other body parts relaxed.
- Taking breaks.
- Developing a healthy lifestyle.

If you have any questions about how your own lifestyle, activities or medical or physical condition may be related to MSDs, see a qualified health professional.

Hearing Loss

Extended exposure to high volumes when using a headset may result in temporary or permanent hearing loss. Some unapproved third-party headsets may produce higher sound levels than approved Xbox 360 headsets.



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